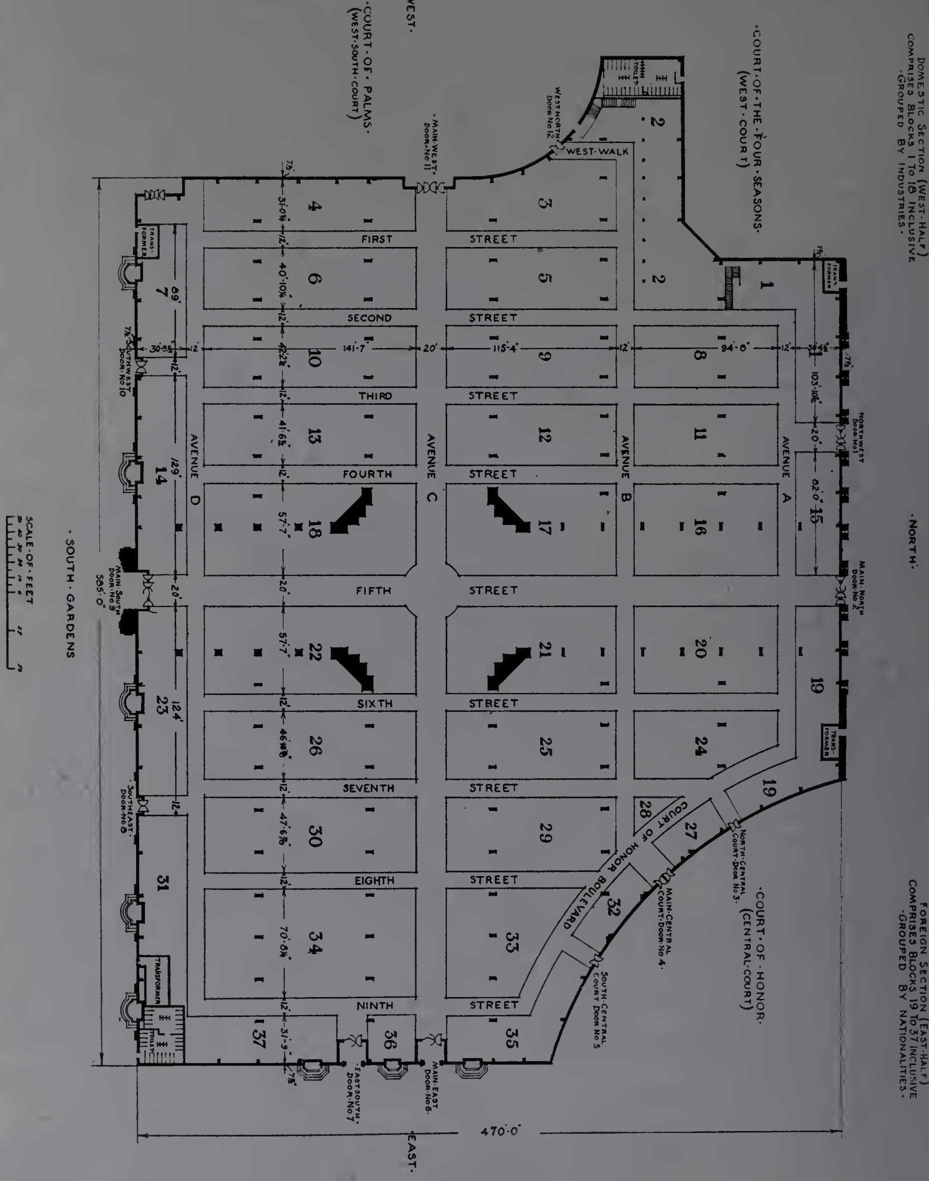
Department of
Liberal Arts

Circular No. 2

BUREAU OF PUBLICATION

Universal Exposition
San Francisco
1915

Division of
Exhibits



PALACE·OF·LIBERAL·ARTS (DEPARTMENT-D)

FLOOR AND AISLE PLAN

PANAMA-PACIFIC INTERNATIONAL EXPOSITION

OPENS FEBRUARY 20 SAN FRANCISCO—1915 CLOSES DECEMBER 4.

YORKERS' YANKEE VILLAGE
YVY
LOCATED IN BEAUTIFUL FINGER LAKES
COUNTRY NEAR WATKINS GLEN, N. Y.

FOREWORD.

The Panama-Pacific International Exposition is a distinctly national undertaking determined upon by the Congress of the United States, and designated by the President of the United States for the purpose of celebrating the opening of the Panama Canal—a national accomplishment that importantly affects the world.

In assuming the burden and expense of the Exposition, in response to the call of the President and the Congress of the United States, the people of California are discharging an important public duty and executing a national trust, the accruing benefits of which will be shared by every State in the Union and by the entire citizenship of the Nation.

While this great inter-hemisphere waterway is a national project, it is nevertheless a world's asset, and the celebration of its opening will be participated in by all countries and peoples. The Exposition will constitute an international concourse of tremendous significance in its effect upon the natural productivity and commercial activity of all countries, and of the United States in particular.

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August 1, 1913

Index

INDUCEMENTS to EXHIBIT in the DEPARTMENT of LIBERAL ARTS 5

ANALYSIS of CLASSIFICATION and SUGGESTED EXHIBITS 7
Group 29—Typography—Various Printing Processes.. 7
“ 30—Books and Publications—Book Binding.... 8
“ 31—Maps and Apparatus for Geography, Cosmography, Topography 9
“ 32—Manufacture of Paper........ 9
“ 33—Photography 10
“ 34—Instruments of Precision, Philosophical Apparatus; Coins, Medals........ 11
“ 35—Medicine and Surgery........ 12
“ 36—Chemical and Pharmacal Arts........ 13
“ 37—Musical Instruments........ 14
“ 38—Theatrical Appliances and Equipment...... 15
“ 39—Electrical Methods of Communication...... 16
“ 40—Civil and Military Engineering........ 17
“ 41—Models, Plans and Designs for Public Works 17
“ 42—Architecture 18
“ 43—Architectural Engineering 17

RECOMMENDATIONS 19

OFFICIAL CLASSIFICATION of the LIBERAL ARTS (Department D) 21-31

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INDUCEMENTS to EXHIBIT
in the
DEPARTMENT OF LIBERAL ARTS
(D)

Panama-Pacific International Exposition

Opens
February 20
1915
Closes
December 4

The wonderful potentialities of this important Universal Celebration at San Francisco in 1915, to celebrate the completion and opening of the great Panama Canal by the United States Government, must appeal to all and particularly to those desirous of keeping well to the front in the van of progress and prosperity.

Here will be assembled carefully selected displays of the best products of every country, and on all these products will be focused the eyes of the entire civilized world, watching with keen interest this friendly rivalry and competition.

It is conceded by the leading students of commercial advancement that the opening of the Panama Canal will herald a new era in which the Pacific area will prove the theatre of the greatest contest for commercial supremacy between the nations. The rich trade of the Orient and the Latin Americas will be the prizes at stake, and it is impossible to overestimate the extent to which these will be developed by the great new water-way which will connect the Pacific with the Atlantic.

In addition, the ''Great West'' of the United States is recognized as the land of opportunity, and there is no line of industry throughout its broad domain that is not moving steadily forward. Vast areas in this wonderfully fertile region are merely awaiting colonization. With the opening of the Panama Canal the majority of the large influx of immigrants will enter this ''Promised Land'' through California. This rapidly increasing population means a corresponding demand for merchandise and supplies of every character.

San Francisco is the dominating city of the Pacific Coast and the hub around which the continued prosperity of this "Great West" revolves.

Statistics show San Francisco to be the financial centre of many operations of magnitude and promotion, such as colonization projects, irrigation, electric power companies, mining enterprises, and large manufacturing and shipbuilding industries.

In the decade ending with the year 1910 the population of California increased over 60%, made up largely of incoming settlers who invested in realty and started new homes in this land of plenty, where the resources and possibilities are boundless and simply awaiting development.

By reason of San Francisco's marked prominence as the *official site* selected by the United States Government for this great universal celebration, the Pacific Coast metropolis will, figuratively speaking, become "the capital of the world" in 1915. Accepted exhibitors will enjoy the advantage of being provided, *free of charge,* with unusually attractive housing and exhibit space, ample fire and police protection, the opportunity to secure valuable awards by the International Jury, an immense audience drawn from all quarters of the globe throughout a period covering nine and one-half months, and other highly desirable publicity benefits that are possible only on an occasion of this international significance and magnitude.

What more fitting occasion for exhibitors to attract widespread and favorable attention to their displays, and what finer opportunity to create or increase the demand for their products?

The important part played by the Liberal Arts in the industrial world can best be appreciated when it is realized that the total exports of these products by all countries *annually* exceeds *one billion dollars,* which approximates eight per cent of the world's entire export trade.

In considering participation, manufacturers should be inspired both by lofty national patriotism in helping to make this great universal celebration the unqualified success it merits, and by laudable pride in maintaining the enviable position already occupied by their industry in the world's commercial arena.

ANALYSIS of CLASSIFICATION and SUGGESTED EXHIBITS
in the
DEPARTMENT of LIBERAL ARTS (D)

In the domain of Liberal Arts the exhibits will be notably interesting and significant. The following Analysis of the various Groups under the Department of Liberal Arts will suggest to intending or prospective exhibitors the general lines that may be followed in selecting desirable articles for exhibition in this Department. Live, working exhibits are especially desirable, showing not only actual products, but also processes to illustrate the apparatus and methods employed in arriving at the finished article.

TYPOGRAPHY—VARIOUS PRINTING PROCESSES.
(See various Classes under Group 29, on page 21.)

The display in this group, forming so important a part of the Graphic Arts section, should be complete and characteristic, with a view of placing before the public the processes and products of this branch of industry which has had so large a share in the educational development of mankind.

The daily press, the magazines, the illustrated papers, the rapid and economical production by photographic, lithographic and engraving processes have made the average man at home quite familiar with scenes and occurrences in remote parts of the world and have thus contributed much to his information and entertainment.

The many improvements in typewriting machines, now so constructed that the writing is at all times plainly in view, will prove highly interesting to the many who find this machine a necessary adjunct to their business or other activities.

The dictating machine—a phonograph arrangement operated by electricity as a relief or substitute for the stenographer—is an office auxiliary of great value, and the many ingenious devices for addressing envelopes, duplicating copy, etc., will all make attractive exhibits.

An exhibit covering the whole range of this broad field would be both highly instructive and full of interest to even the casual observer. It should show the processes, step by step, from the initial work to the highest type of the finished product. To this end skillful engravers, artisans, lithographers and pressmen should be busy in their respective lines with printing presses, embossing presses, folding machines, etc., in full operation, to give life and movement to the whole exhibit.

The general public is not familiar with all the methods and processes and their interest in them would probably not be exceeded by any other feature of the coming Exposition. This, then, will be an exceptionally good opportunity for exhibitors to bring their work to the attention of the public.

A vigorous effort will be made to collect an exhibit that will, in every way, be creditable to this very important branch of industry and one that will be correspondingly profitable to the exhibitors. This necessitates the hearty co-operation of those who are engaged in this field of work, both at home and abroad, and it is hoped that this Department will have the earnest support required to make this group exceptionally valuable and interesting.

BOOKS AND PUBLICATIONS—BOOK BINDING.

(See various Classes under Group 30, on page 21.)

This covers a very wide and interesting field embracing all classes of publications. Journalism, which has grown to such great proportions and has become the prime factor in moulding public opinion, should be fully illustrated. The processes of newsgathering, the typical newspaper office or editorial rooms, specimens of newspapers and magazines from all parts of the world, historical exhibits illustrating the evolution of the newspaper from the earliest times, the advertising columns, etc., are all so important that their collection and display should command the best efforts of the entire newspaper fraternity.

Books and book-making, from the early illuminated manuscripts down to the sumptuous volumes of today, afford much good material for attractive exhibits.

No field of effort has shown more marked activity and advancement than Advertising. A practical demonstration of the most approved modern means and methods employed in the Graphic Arts branch of Advertising will be sure to prove highly advantageous to the industry.

Book-making and binding, showing the processes of folding, stitching, stapling, embossing, and the many other items entering into the production of a complete volume, would make a live exhibit which would be both pleasing and instructive.

MAPS AND APPARATUS FOR GEOGRAPHY, COSMOGRAPHY, TOPOGRAPHY.

(See various Classes under Group 31, on page 22.)

Aside from the ordinary use of maps for representing the relative positions of natural and artificial objects on the earth's surface, they are also in general use for representing graphically the results of statistical investigations; such results—representing many pages of figures—may, in this way, be seen at a glance. Much ingenuity is often displayed and novel methods resorted to in the preparation of such maps, so that the information obtained will be readily apparent.

The various ingenious mechanical systems for assorting and grouping cards for statistical work will add materially to the interest in this group.

Relief maps are particularly attractive to the average observer, and a collection of them representing localities of special interest is very desirable. The Niagara Gorge, the Grand Canon of the Colorado, Yellowstone Park, and Yosemite Valley may be mentioned in order to suggest others covering equally interesting fields.

Globes of large size, showing the earth's surface in relief, with meridian circles and other attachments, are always interesting. Celestial globes, with astronomical tables, etc., also find a proper place in this group.

Maps of remote countries and special maps of our own country and its insular possessions, all illustrative of the map-maker's art, will aid very materially in making this group attractive.

MANUFACTURE OF PAPER.

(See various Classes under Group 32, on page 22.)

This group is intended to cover the entire field of paper making, the machines and processes employed, as well as the raw material and the finished product in all its great variety.

The development of paper making, followed through the various steps from the early days of papyrus down to the present time, together with processes and products from the Oriental and other distant lands, would be exceedingly novel and attractive as exhibits.

The ponderous character of paper-making machinery, the space needed and the large power required to operate it, necessarily limits this class of process exhibit to perhaps one complete plant, of moderate size, which could be operated a short time each day. Such exhibits are, however, solicited, and every effort will be made to put in operation sufficient machinery to fully illustrate the art of paper making in one or more of its many forms; otherwise, models could be used.

PHOTOGRAPHY.

(See various Classes under Group 33, on page 23.)

This group will embrace the equipment, processes and products of photography in all its branches.

Photography will here find an attractive home, amid congenial surroundings filled with displays of the graphic arts, music, the drama, civil engineering, architecture, etc.

Special provisions will be made for the display of selected, high-grade examples of artistic photography.

Under this system there should be gathered such a fine array of artistic photographs as will merit the admiration of art connoisseurs and win the plaudits of artists of the older schools of the brush and pencil.

The very large number of professional and amateur photographers in all parts of the world who are daily producing pictures of a high order, will doubtless lend their aid in gathering a most interesting and valuable display of their work.

The latest developments in color photography in all its phases should be freely treated, as also the scientific applications of photography to astronomy, surveying, etc.

The photo processes also afford a fine field from which to gather attractive exhibits.

All classes of cameras and their appurtenances will find a suitable place in this group.

A display of the successful methods recently employed in transmitting photographs over telegraph or telephone wires for a long distance would prove most interesting, as the results obtained are far in advance of anything yet accomplished in this direction, and will undoubtedly be greatly augmented by 1915.

Bull — 7 —

No branch of Photography has developed so rapidly and attracted so much attention as Moving Pictures. It adds immeasurably to the general intelligence of the non-traveling public, for they can go anywhere in the known universe without leaving their opera chairs. Through this branch of the art everybody can almost everywhere see, at a minimum cost, pictures of home life and social customs that they otherwise could never enjoy. They learn how to dress, how to be polite, and how to act in company, simply from observing how it was done on the stage.

The scientific use of the motion picture in reproducing surgical operations, processes of biological development and famous historical events is notable. Nor has it yet been utilized to its full possibilities for spiritual culture. It has been predicted that the time will come when an up-to-date church, working for the masses, will have to own and operate a moving picture machine at its meetings, as surely as it now has to own a pipe-organ. Exhibits in this class will prove especially attractive.

The latest development in this line is the practical combination of the motion picture machine and the phonograph, which has resulted in a Talking-Singing Moving-Picture. This remarkable invention is now on the market, and by 1915 it will have undoubtedly reached a much greater state of perfection.

INSTRUMENTS OF PRECISION, PHILOSOPHICAL APPARATUS, ETC., COINS AND MEDALS.

(See various Classes under Group 34, on page 23.)

This group covers a wide field and into it should be gathered a large number of the intricate and interesting instruments which are fully designated in the several classes.

As the recent discoveries of the North and South Poles would have been impossible without such instruments of precision as sextants, compasses, chromometers, meteorological apparatus, etc., a particularly keen interest would undoubtedly be taken in a thoroughly representative display of this character.

A great astronomical telescope, with its mountings and equipment for manipulation, lenses and methods of grinding them, and heliotropes as used by the army and navy, together with the many other objects of interest in this group would, at all times, command the attention of large audiences.

The almost human calculating machines and cash registers, as well as the very ingenious computing scales and the modern weights and measures, will all attract a great deal of attention.

Coining presses and their products, collections of rare and curious coins and medals, coin balances, coin assorters, and other appliances used in connection with the making of coins and medals, are never lacking in interest. Historical collections along these lines would be valuable.

MEDICINE AND SURGERY.

(See various Classes under Group 35, on page 25.)

The great developments in what may be termed the mechanical side of medicine and surgery will bring into this group a very large collection of instruments and appliances used in this important field of human endeavor.

The prevention and mitigation of the ills which beset mankind, call for the exercise of the highest form of human skill, guided by the highest type of intelligence, reinforced by experience.

The discoveries of Pasteur, Koch and other masters in the field of modern medical research have been of incalculable benefit to their fellow men, and the appurtenances necessary fully to illustrate the application of their methods should find a prominent place in this group.

An analysis of this group would not be complete without some reference to the splendid results achieved in the Panama Canal Zone through the remarkable skill, devotion and enterprise of the United States Army Medical Corps under direction of Colonel William C. Gorgas, head of the Department of Sanitation for the Canal Zone. By scientific elimination of the deadly mosquito and application of specially devised sanitary methods they have practically wiped out the malignant fevers and other diseases which formerly exacted such a heavy toll and retarded the work of Canal construction. A complete demonstration of the methods and equipment adopted will undoubtedly be shown in the United States Government exhibit.

In some of the great Expositions of the past Medical Science has received considerable attention. There have been shown hospitals, dispensaries, and pharmacies; gardens, in which were grown a large variety of medicinal plants; surgical instruments of great variety; everything pertaining to dentistry.

the treatment of natural teeth and the manufacture of artificial ones. These exhibits proved of very great educational value to the members of the medical and surgical professions, and through them they contributed largely to the welfare of mankind.

The wonderful developments in medicine and surgery that have been made in recent years make it doubly certain that a collection of exhibits such as those called for in this group would be of even greater value to the human family than any previous exhibit of a similar character.

The strong support of the medical fraternity and the manufacturers of medical and surgical appurtenances and appliances is, therefore, confidently looked for.

This very important group should be filled with specimens of all kinds of instruments and appliances which pertain to medicine, surgery and dental work.

Anatomical models, diagnostic apparatus, hospital appliances, marine hospital service, quarantine stations, with their fumigating, sterilizing and other devices, etc., should be fully represented.

The Exposition Hospital, equipped to meet all emergencies, will provide a splendid opportunity for manufacturers to install a complete working exhibit of Medical and Surgical instruments and appliances, which would attract widespread attention.

CHEMICAL AND PHARMACAL ARTS.

(See various Classes under Group 36, on page 26.)

This large and interesting group covers twenty-four classes, in each of which there is much of interest even to the layman.

The science of chemistry is far-reaching and in some of its branches touches nearly every known industry. There is, therefore, an abundance of material to make, in the aggregate, a very large exhibit.

The processes of manufacture should be shown when they are of special interest, attractive and inoffensive as to odors or gases.

Among the mechanical devices used in the processes of manufacture, that could be shown to advantage, may be mentioned tablet machines, pill machines, capsule machines, etc.

Laboratory apparatus and equipment used in the various classes of manufactures in the chemical and pharmacal arts, are especially well-adapted for display as exhibits.

Many of the products are also quite attractive, such as the extracts, essences, soaps, perfumes, etc., while the various drugs and proprietary medicines are sure to prove highly interesting.

Recent discoveries in the science of Chemical research bid fair to revolutionize the art and set chemists working on new lines all the world over.

A comprehensive display showing the methods used in adulterating drugs, and the means by which they are readily detected, should prove especially instructive by reason of the existing keen interest in this highly important effort to protect the public health.

The above outline is simply intended to call attention to some of the salient features of this group, which amply provides for a very wide range of chemical and pharmacal exhibits.

MUSICAL INSTRUMENTS.

(See various Classes under Group 37, on page 28.)

From the above classification, it will be seen that this group embraces all kinds of musical instruments from the great organ and grand piano to the rude instruments fashioned by savage hands.

As musical instruments and appliances appeal perhaps to a far larger number of people than any other line of exhibits, manufacturers will here find strong inducements for generous displays of their best products.

Where processes of manufacture can be shown, they should be utilized to enhance interest in the exhibits.

The *player-piano* has in very recent years enjoyed such a remarkable development that it has advanced from the class of automatic instruments and now occupies a commanding position in the important industry represented by the manufacture of pianos. As the player-piano is no longer regarded as a mechanical instrument, and is recognized by competent authorities as one of the most potent forces in creating and satisfying the widespread demand for good music, a comprehensive display of the latest types of this very satisfying type of piano will undoubtedly prove a most attractive exhibit.

The remarkably ingenious devices for automatically reproducing vocal and instrumental music are many, and the high state of perfection to which they have been developed insures unusual interest in an exhibit of modern phonographs, graphophones, and talking machines, self-playing orchestrions, electric pianos and other mechanically operated musical instruments.

One or more pipe-organs of suitable scope and volume could be installed as working exhibits in the great Festival Hall on the Exposition Grounds. These instruments would become the official organs of the Exposition when used in connection with the musical exercises that will be held from time to time.

Builders of high-grade organs will, no doubt, realize that this will be a rare opportunity to bring their instruments in a most advantageous way before the world at large, and propositions for such installation will receive due consideration.

THEATRICAL APPLIANCES AND EQUIPMENT.

(See various Classes under Group 38, on page 28.)

The great strides made in the development of stage effects, by means of which plays have become marvelously realistic, make this group very attractive and worthy of the hearty support of both those who create and construct stage appliances and the actors whose art is enhanced by them, to the end that full lines of exhibits in the several classes may be placed on view.

To the general public, who are familiar only with what appears before the curtain or in sight on the stage, what would appeal more strongly than a "peep behind the scenes?" A fully equipped stage, therefore, could be shown with its drop curtain, special furniture, slides, traps, flies, wings, props and shifting scenery, with various devices for light, cloud, rain, surf and other effects.

In this way, under the direction of an expert stage manager, the operating methods actually employed "behind the scenes," including costuming and make-ups of all kinds, could be admirably demonstrated by live, working exhibits that would prove most instructive and satisfying to all.

Interior equipment and furnishings of theatres, with approved devices for preventing and extinguishing fires, are very important and their general display would prove of much value.

In addition, there could be developed a series of stages in miniature, with artistic dummy settings of actors in scenes from well-known plays, or scenes illustrating special features relating to the acquisition and development of the Far West.

ELECTRICAL METHODS OF COMMUNICATION.

(See various Classes under Group 39, on page 29.)

The limits of electricity are boundless, and the application of this wonderful energy to almost every field of activity is constantly developing some new industry or profession and improving those already established. There is no branch of the Applied Sciences more fascinating or which has a stronger hold upon the imagination and interest of the public.

The Telephone and Telegraph have been perfected and simplified to such a remarkable degree that they are now essential forces in every enlightened country, and even the remotest parts of the globe are through this medium being brought closer and closer into touch with the civilized world. Their effect has been the practical annihilation of distance and an economy of time that is incalculable in all walks of life. The announcement has already been made by the telephone authorities that visitors at San Francisco in 1915 from the Atlantic seaboard will be able to talk direct with their homes from the Exposition grounds over wires more than 3000 miles long.

The Dictograph, used in connection with an inter-office system of telephonic communication, will demonstrate how well the transaction of business is expedited through this remarkable method. The adaptation of this wonderful little instrument to the detection of crime will also prove a source of the keenest interest to all. The many ingenious electrical devices invented to help the deaf will likewise excite the warmest interest and admiration.

Wireless Telegraphy is already an established fact and even wireless Telephony bids fair to have become assured also by the time the Exposition opens in 1915.

The latest improvements in Fire and Burglar alarms and Police signal systems will attract much attention because of the protection they afford to both life and property.

Working exhibits of all these electrical methods of communication will prove especially attractive. While Telephone and Telegraph offices, and Fire Alarm and Police Signals, will be located at various points on the Exposition grounds, the central stations will be established as working exhibits in the Palace of Liberal Arts, to afford visitors an ocular demonstration of how these great systems are maintained and operated.

CIVIL AND MILITARY ENGINEERING.

MODELS, PLANS AND DESIGNS FOR PUBLIC WORKS.

ARCHITECTURAL ENGINEERING.

(See various Classes under Groups 40, 41, 43, on pages 29-30-31.)

In view of the fact that the Panama Canal is the world's greatest achievement in *constructive engineering,* it is especially fitting that the Engineering profession and its allied industries should seize this opportunity offered by the Exposition to show how important their share has been in the development of the world for the uses of civilized man.

This remarkable development has been made possible by the energy and skill of the engineer. He has built railways across the trackless plains; he has tunneled the mountains; he has bridged the rivers; he has deepened the waterways and improved the harbors so as to adapt them to the requirements of navigation; he has built storage reservoirs and irrigating canals which have made the desert plains blossom with fertile fields and filled them with thrifty and happy homes.

The engineers of the old world should also join their American brethren and bring to us the best examples of their skill in directing and controlling the forces of nature for the uses of man.

The great corporations which have been so well and faithfully served by the engineers will doubtless lend their substantial aid in the preparation of models and other matter illustrating the character and magnitude of their respective works and displaying the skill of their engineers.

In these three groups, models are the most effective as exhibits, where full-sized specimens are too cumbersome to be shown. The next in order of importance would be photographs of the various phases of construction up to the completed work; following these would be drawings, maps, plans, specifications, reports and other technical literature.

The subjects to be considered cover a wide field in the various classes from 190 to 215, which, for convenience, have been divided into three groups, excluding Classes 209 to 211 which form Architecture—Group 42. Among the many interesting features that can be shown to good advantage may be mentioned passenger elevators and pneumatic tubes; bridges, which are made in great variety; equipment and processes for deep foundations by land and by sea; methods used in earthwork; military defenses and accessories; water power development; the water supply of cities, including methods of filtration and other adjuncts; sewage systems and the disposition of garbage; road making and maintenance.

In the field of river and harbor improvements and canals for navigation, storage reservoirs and distributing canals, are many devices which can be shown by models, relief maps, etc. Dredge boats of various kinds, hydraulic graders, pile sinkers, revetment work, etc., are all well adapted to representation by means of models.

Jetties, breakwaters, canal locks, sea walls, levees and similar work can be best shown by means of models, accompanied by maps and photography.

The eyes of the world are upon the Panama Canal, and working models of this great triumph of engineering skill will prove of the keenest interest to all. The short water cut through the Isthmus of Panama will change the geography of the Western Hemisphere and is attracting more attention than any single event of the past century.

Subways and elevated railways for cities, with their stations and appliances for transporting and caring for people, are susceptible of such treatment as to make attractive exhibits.

In Architectural Engineering, models of the modern office building, showing the steel frame, fire escapes, ventilator and plumbing systems, as well as the materials used in the exterior and interior finishings, would be very acceptable; models, drawings and photographs of public buildings, hospitals, dwellings, with the ornamentation of grounds, parks, etc., are also desirable.

ARCHITECTURE.

(See various Classes under Group 42, on page 30.)

Illustrations of the Architect's art and skill will make an exhibit of unusual attractiveness. Architecture and its allied arts have exercised a very strong influence toward improving the conditions of economic life, and the exhibits portraying these advances are planned to be especially complete and characteristic.

The Architectural display will comprise on a large scale elaborate drawings, models and photographs of proposed and executed work in structural, decorative and landscape architecture, including sketches and finished examples of ornamental sculpture for buildings, etc.

The buildings and grounds of the Panama-Pacific International Exposition itself, and the wonderfully reconstructed city of San Francisco, will be among the best object lessons in advanced architecture.

RECOMMENDATIONS:

The specific mention of certain features of the several classes are simply suggestions which can be readily amplified by similar treatment of every item in the official Classification.

The Rules and Regulations of the Exposition, accompanying each application blank, should be carefully considered before filling out requests for allotments of space. These must, in all cases, conform strictly to the Rules and Regulations.

In the preparation of exhibits, it should be borne in mind that the best interests of the exhibitor, the visitors and the Exposition require that no effort should be spared to make the exhibit attractive in its arrangement and in its movement, and that special processes should be shown whenever it is practicable.

While as liberal allowances of space will be made as are found to be practicable, exhibitors should restrict themselves to as few well-selected examples of their products as are permissible, with due regard to the creditable display of the best features of their work, rather than attempt to make an exhibit impressive through its magnitude.

Any further information desired will be promptly furnished upon application.

THEODORE HARDEE,
Chief of the
Department of Liberal Arts.

OFFICIAL CLASSIFICATION of the LIBERAL ARTS

(Department D.)

Group 29.

TYPOGRAPHY—VARIOUS PRINTING PROCESSES.

(Equipment, Processes and Products.)

Class 95. Machinery, presses and other apparatus used in typography, lithography, copper-plate printing, autography, engraving on stone, copper, zinc, aluminum, etc.

Class 96. Machinery used for photo-mechanical printing.

Class 97. Equipment, apparatus and products of type foundries, and other auxiliary and miscellaneous printing office appliances and labor-saving devices of stereotyping, electrotyping, electrolytic appliances and processes; electro-thermic appliances and processes.

Class 98. Machines for setting and distributing type, casting type, etc.

Class 99. Special equipment for printing bank notes, postage stamps, bonds, etc.

Class 100. Typewriting machines and devices for duplication of copy, mimeograph, neostyle, addressing machines, dictating machines, etc.

Class 101. Specimens in black and color typography, lithography, copperplate printing and other methods of printing.

Class 102. Specimens of engravings and drawings obtained, reproduced, enlarged or reduced by photo-mechanical processes.

Group 30.

BOOKS AND PUBLICATIONS—BOOK BINDING.

(Equipment and Products.)

Class 103. Newspapers, reviews and other periodicals and publications; newspaper and magazine offices or plants shown by models or photographs; means and methods of advertising, news gathering, etc.; methods and processes of publication. (Technical and Trade publications may be displayed in the Department with which they are allied.)

Class 104. Collections of books, forming special libraries.

Class 105. New books and new editions of old books.

Class 106. Drawings for book, newspaper and magazine illustration, atlases, albums.

Class 107. Musical publications. (May be displayed in Group 37.)

Class 108. Musical scores. (May be displayed in Group 37.)

Class 109. Equipment and processes of making stitched books and of bookbinding.

Class 110. Specimens of binding, stamping, embossing, gilding, etc.

Class 111. Artistic bookbinding.

Group 31.

MAPS AND APPARATUS FOR GEOGRAPHY, COSMOGRAPHY, TOPOGRAPHY.

Class 112. Maps, charts and atlases; geographical, topographical, geological, hydrographical, astronomical, etc.

Class 113. Topographic models in relief.

Class 114. Terrestrial and celestial globes; statistical works and tables.

Class 115. Statistical tables and nautical almanacs for the use of astronomers, surveyors and seamen.

Group 32.

MANUFACTURE OF PAPER.

(Raw Materials, Equipment, Processes and Products.)

Class 116. Collections of raw materials used in the manufacture of paper and cardboard.

Class 117. Equipment and processes used in making pulp from rags, straw, wood, etc.

Class 118. Appliances and processes used in the manufacture of paper by hand.

Class 119. Equipment and processes used in the manufacture of paper by machinery. Machines for producing endless paper. Apparatus for cutting, glazing, calendering, polishing.

Class 120. Apparatus and processes used in the manufacture of special papers and of cardboard.

Class 121. Paper mill products, including papers of common and special grades not made up; paper for newspapers, books, maps, bank notes, drawings; photographic and art papers; paper for stationery; packing, wrapping and blotting paper; filter and laboratory paper; building and stock for wall paper; mill board and cardboard; papier machè, compressed paper, etc.

Group 33.

PHOTOGRAPHY.

(Equipment, Processes and Products.)

NOTE: Photographs relating to any exhibit may be shown in connection therewith in any Exhibit Palace.

Class 122. Materials, instruments and apparatus of photography, equipment of photographic studios, stereopticons, mutographs, kinetoscopes, moving pictures, etc.

Class 123. Negative and positive photography on glass, paper, wood, cloth, films, enamel, etc. Photogravure in intaglio and in relief; photocollography, photolithography. Stereoscopic prints. Enlarged and micrographic photographs. Color photography. Direct, indirect and photo-color printing. Scientific and other applications of photography.

Class 124. Pictorial photography.

Group 34.

INSTRUMENTS OF PRECISION, PHILOSOPHICAL APPARATUS, ETC., COINS AND MEDALS.

(Equipment, Processes and Products.)

Class 125. Laboratory apparatus for physical investigations; mathematical instruments; instruments for practical geometry; instruments for refined physical measurement; sensitive balances, high grade thermometers, indicators, integrators, chronographs, etc. Lecture room apparatus.

Class 126. Instruments for and methods of land surveying, including plane, topographic and geodetic surveying. Surveyor's compasses, leveling instruments, transits, geographic instruments, pedometers, heliotropes, etc.

Class 127. Astronomical instruments and methods; telescopes and fittings, astronomical photographic apparatus and photographs; reflectors, helioscopes, astronomical clocks.

Class 128. Navigation instruments and equipment; including sextants, mariners' compasses, alidades, patent logs, sounding machines, chronometers, etc. Meteorological instruments, thermometers, barometers, wind current meters, etc.

Class 129. Electrical instruments and apparatus for scientific investigations or research work; electrical furnaces for laboratory use; thermal batteries; electrical standards.

Class 130. Photometry; apparatus for determining the intensity, distribution and illuminating power of light. Standards.

Class 131. (Transferred to Class 542.)

Class 132. Optical instruments for general use; telescopes, binoculars, opera, field and marine glasses, magnifying glasses. Lenses for testing vision; eye glasses and spectacles.

Class 133. Calculating machines; cash registers; scales, weights and measures of various countries.

Class 134. Equipment for the manufacture of coins and medals. Appliances for weighing the metal, testing the standard of alloys, melting and casting, rolling, stamping out, milling, washing, verification of weight of coins, counting, striking, and checking them before delivery; equipment for the preparation of stamps and dies, coins and medals; treatises upon coins, economical, statistical, etc.

Group 35.

MEDICINE AND SURGERY.

Class 135. Appliances, instruments and apparatus for work in anatomy, histology and bacteriology; anatomical models; normal and pathological, histological and bacteriological preparations.

Class 136. Apparatus for sterilizing instruments and wound-dressing appliances, and for other purposes of sterilization.

Class 137. Instruments for general and special medical research.

Class 138. Instruments and apparatus for general, special and local surgery.

Class 139. Electricity as applied in therapeutics, surgery and dentistry; X-ray apparatus; electric sterilizers, ozonizers.

Class 140. Appliances for dressing wounds.

Class 141. Apparatus for plastic and mechanical prosthesis; orthopedic apparatus; apparatus for hernia; apparatus for medical gymnastics; material, instruments and apparatus for special therapeutics.

Class 142. Instruments and apparatus used in the practice of dentistry; dental surgery, bridge and plate work, etc.

Class 143. Appliances for the use of the infirm, of invalids, and of lunatics; artificial limbs, artificial eyes.

Class 144. Chests and cases of instruments and medicines for the use of surgeons of the army and navy; appliances for rendering aid to the wounded on the field of battle; appliances for rendering aid in case of accident; ambulance service, etc.

Class 145. Appliances for rendering aid to persons apparently drowned or asphyxiated.

Class 146. Instruments and appliances for veterinary surgery.

Class 147. Equipment and utensils used by druggists and pharmacists.

Group 36.

CHEMICAL AND PHARMACAL ARTS.
(Equipment, Processes and Products.)

Class 148. Laboratory apparatus and utensils: lamps, blowpipes, presses, drying ovens, filters; furnaces, ovens, etc., used in chemical laboratory work.

Class 149. Apparatus and instruments for making industrial and commercial analyses.

Class 150. Equipment and processes used in the chemical treatment of animal substances, with their products; superphosphates, soaps, candles, glycerine.

Class 151. Apparatus and processes for the production by electrolysis of hydrogen peroxide, chlorine, hypochlorites, chlorates, soda, bleaching materials, and various other chemicals; also electrothermal appliances and processes for chemical manufacture not otherwise specified.

Class 152. Equipment and processes used in the manufacture of vegetable essences.

Class 153. (Transferred to Class 776.)

Class 154. By-products for Pharmacal use obtained from the treatment of mineral substances, such as petroleum and coal tar derivatives, etc.

Class 155. Equipment and processes used in treating waste matter from factories (by chemical or electrical methods) with a view to permitting their return to water courses or to the atmosphere.

Class 156. Equipment for charcoal work and the production of various derivatives; methylated spirit, acetone, acetic acid, tar, wood alcohol, pyroligneous acid. Products of charcoal burning.

Class 157. Apparatus and processes for the compression and liquefaction of gas. Liquefied gases.

Class 158. Apparatus and processes for the manufacture of artificial textiles.

Class 159. Appliances and processes used in the manufacture of pharmacal products. Raw materials of pharmacy; sera and other biological products, as bacterines, vaccines, tuberculines, etc.; drugs of mineral, animal and vegetable origin, crude, powdered and compound; special appliances for collecting, cleaning, peeling, slicing, cutting and garbeling crude drugs.

Class 160. Disinfectants; standardization of disinfectants; manufacture of disinfectants; drug preservation, drug sterilization, ampuls, etc.

Class 161. Acids, alkalies, salts and compounds of every kind. Chemical elements derived from their compounds and chemical compounds not otherwise classified.

Class 162. Refined sulphur and derivatives from sulphur.

Class 163. Equipment and processes used, and products obtained in the manufacture of phosphorus and matches.

Class 164. Drug adulteration; methods of adulteration; methods of detecting adulteration.

Class 165. Various products of chemical industries; tanning materials, waxes, essential oils, glue and gelatine; perfumes, cosmetics and extracts; various glazes, printing ink, blacking.

Class 166. (Transferred to Manufactures and Agriculture.)

Class 167. (Transferred to Mines and Metallurgy.)

Class 168. Alcohols modified for industrial purposes.

Class 169. Equipment and appliances for producing calcium carbide and for the storage of acetylene gas.

Class 170. Insecticides; fungicides; parasiticides and methods of manufacture and use.

Class 171. Pyrotechnics, bombs, signals, etc.

Group 37.

MUSICAL INSTRUMENTS.

(Materials, Processes and Products.)

Class 172. Materials and processes for manufacturing musical instruments.

Class 173. Wind instruments of metal or wood, having openings with or without keys, simple mouthpieces, pipes or reeds, with or without reservoir of air.

Class 174. Metal wind instruments, plain or with lengthening pieces, slides, pistons, keys or reeds.

Class 175. Wind instruments with keyboard; organs, accordions, etc.

Class 176. Stringed instruments without keyboard, played with the fingers or with a bow.

Class 177. Pianos, player-pianos, and other stringed instruments with keyboard.

Class 178. Instruments played by percussion or friction; drums and cymbals.

Class 179. Automatic instruments: barrel organs, bird organs, musical boxes, piano and organ players, bandonians, orchestrions, etc.

Class 180. Phonographs, talking machines, graphophones and similar devices.

Class 181. Separate parts of musical instruments and orchestral appliances; strings for musical instruments.

Group 38.

THEATRICAL APPLIANCES AND EQUIPMENT.

Class 182. Interior equipment and special furniture for theaters.

Class 183. Arrangements for preventing and extinguishing fires. (See also Class 463.)

Class 184. Scenery; curtains, metallic curtains, gauzes, nets; colors, brushes, palettes, cordage; special iron work; lighting; electrical apparatus, candelabra, colored screens, apparatus for imitating flame, smoke, lightning, fireworks; projections; spectres; phosphorescence.

Class 185. Machinery; windlasses, drums, chests, traveling platforms, slides, trolleys, traps, counterweights, flies.

Class 186. Costumes; special materials, printing on different materials, armor; jewelry; foot-gear; dancing shoes, wigs, beards, makeup; paints for making up.

Class 187. Properties for the imitation of various phenomena, such as thunder, hail, wind, snow, gun-firing; card-board work of all kinds; furniture made in perspective.

Group 39.

ELECTRICAL METHODS OF COMMUNICATION.

Class 188. Telephone, telegraph and wireless instruments, dictographs, devices for the deaf, etc., their apparatus and specific equipment.

Class 189. Fire alarm systems and equipment; police signals and patrol box systems and equipment; electric annunciators and other electric signal apparatus not classified.

Group 40.

CIVIL AND MILITARY ENGINEERING.

Class 190. (Transferred to Mines and Metallurgy.)

Class 191. Methods of testing structural materials, and apparatus used therefor.

Class 192. (Transferred to Class 215.)

Class 193. Methods used in earth work, such as the construction of canals, railroads, levees, embankments, etc.

Class 194. Equipment and methods for the construction and maintenance of roads, streets, promenades and highways.

Class 195. Equipment for and methods used for preparing foundations; piles, pile-drivers, screw-piles, pneumatic apparatus, caissons, diving apparatus, wire trams, etc.

Class 196. Passenger elevators, pneumatic tubes, etc.

Class 197. Military defenses and accessories; engineering material employed in the operation of an army.

Class 198. (Transferred to Classes 197 and 532.)

Class 199. Equipment for and methods used in storing and distributing water. (See Class 759 for special methods in mining.)

Class 200. Equipment for and methods of city sanitation.

Group 41.

MODELS, PLANS AND DESIGNS FOR PUBLIC WORKS.

Class 201. Roads and other public highways. Construction and maintenance of streets in cities.

Class 202. Inland navigation; improvement of rivers, construction of canals, dams, locks, lifts, ship railways, reservoirs, spillways and feeders; dredges, pile sinkers, pile drivers, current deflectors, scraping and water-jet devices for removing sandbars, etc.; pumping stations, mechanical towing and warping; equipment used for the development of river ports.

Class 203. Sea ports (general arrangements); piers, docks, jetties, basins; equipment for development (not including shipping).

Class 204. Bridges and viaducts; railway, road and foot bridges.

Class 205. Maritime canals.

Class 206. Protection against flooding by rivers or by sea; levees, dikes and sea walls.

Class 207. Railways as regards plan and profile of the line, and engineering works, subways, elevated lines, tunnels.

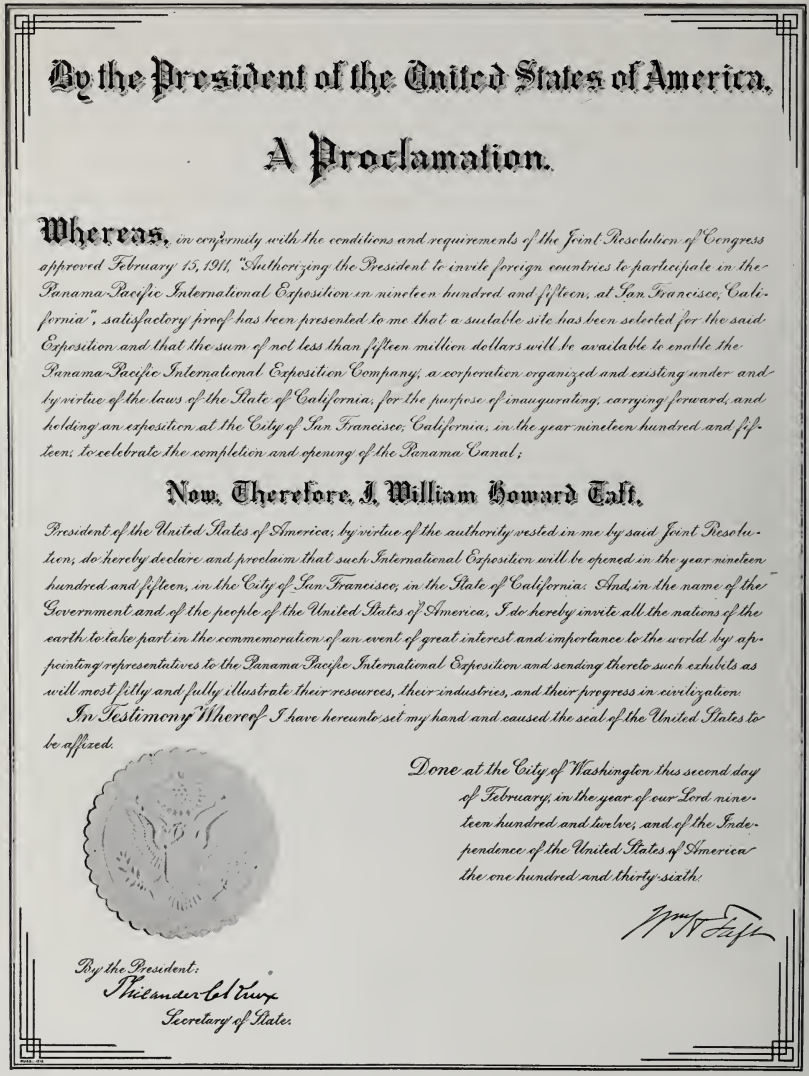
Class 208. Statistics, maps and publications relative to public works; transactions and other features pertaining to engineering societies.

Group 42.
ARCHITECTURE.

Class 209.	Drawings, models and photographs of completed buildings.
Class 210.	Drawings, models and photographs of artistic architectural details.
Class 211.	Designs for mosaics and for mosaic and leaded glass.

Group 43.
ARCHITECTURAL ENGINEERING.

Class 212.	Models and working plans of public and commercial buildings, large and small dwelling houses, flats, apartment houses, and other architectural structures.
Class 213.	Models, detail drawings and specifications for foundations, walls, partitions, floors, roofs and stairways, wood and metal framing, etc.
Class 214.	Designs and models of special contrivances for safety, comfort and convenience in the operation of moving stairways, doors, windows, house signals, fire escapes, ventilators, etc.
Class 215.	Working plans for the trades, mason, carpenter, etc., connected with building construction; designs and models of bonds, arches, coping, vaulting, etc.; plastering and construction of partitions.



By the President of the United States of America.

A Proclamation.

Whereas, in conformity with the conditions and requirements of the Joint Resolution of Congress approved February 15, 1911, "Authorizing the President to invite foreign countries to participate in the Panama-Pacific International Exposition in nineteen hundred and fifteen, at San Francisco, California", satisfactory proof has been presented to me that a suitable site has been selected for the said Exposition and that the sum of not less than fifteen million dollars will be available to enable the Panama-Pacific International Exposition Company, a corporation organized and existing under and by virtue of the laws of the State of California, for the purpose of inaugurating, carrying forward, and holding an exposition at the City of San Francisco, California, in the year nineteen hundred and fifteen; to celebrate the completion and opening of the Panama Canal;

Now, Therefore, I, William Howard Taft,

President of the United States of America, by virtue of the authority vested in me by said Joint Resolution, do hereby declare and proclaim that such International Exposition will be opened in the year nineteen hundred and fifteen, in the City of San Francisco, in the State of California. And, in the name of the Government and of the people of the United States of America, I do hereby invite all the nations of the earth to take part in the commemoration of an event of great interest and importance to the world by appointing representatives to the Panama-Pacific International Exposition and sending thereto such exhibits as will most fitly and fully illustrate their resources, their industries, and their progress in civilization.

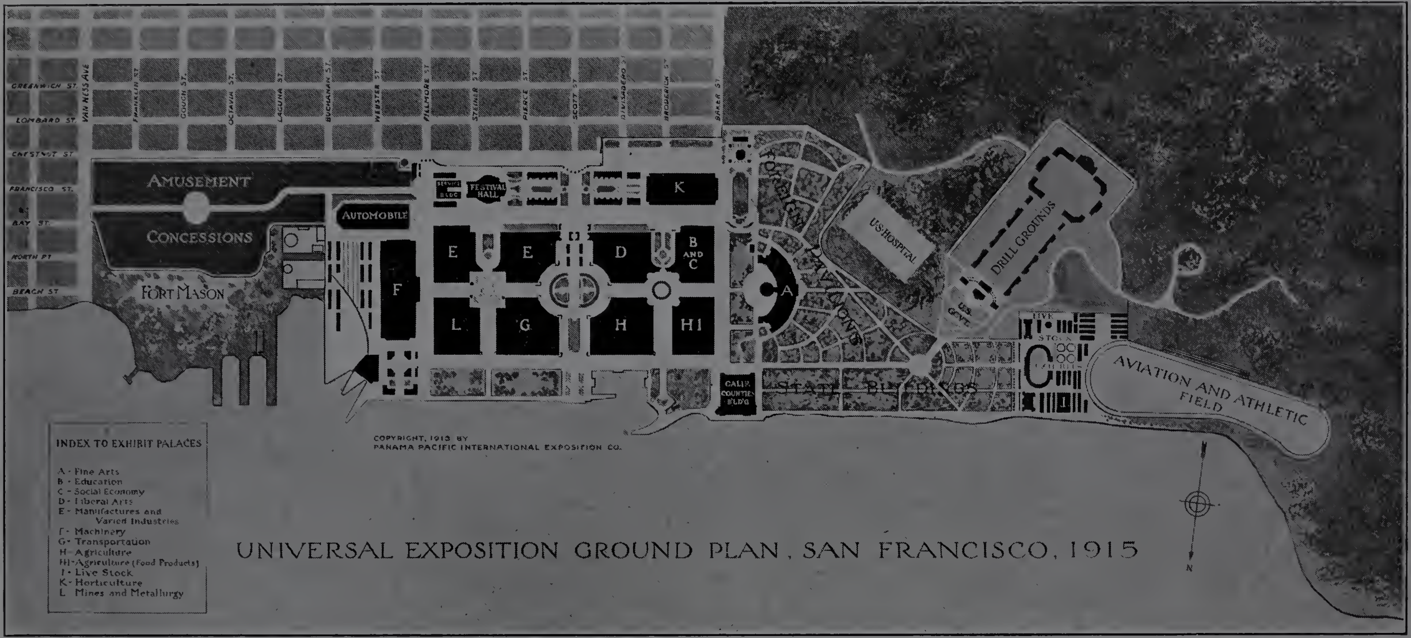
In Testimony Whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this second day of February, in the year of our Lord nineteen hundred and twelve, and of the Independence of the United States of America the one hundred and thirty-sixth.

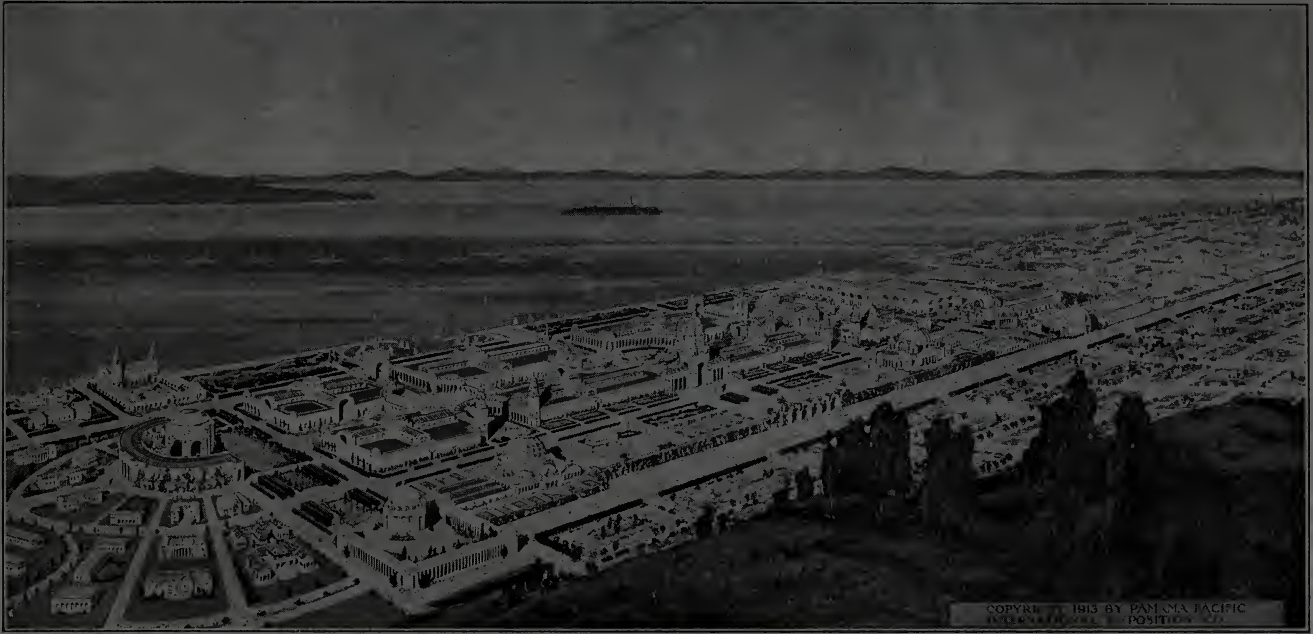
Wm H Taft

By the President:
Philander C Knox
Secretary of State.

Proclamation issued by the President of the United States inviting all Nations to participate in the Universal Exposition at San Francisco in 1915



The letter D indicates the Location of the Palace of Liberal Arts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Birdseye View of the Panama-Pacific International Exposition, Showing the Palace of Liberal Arts Directly West of the Grand Central Tower